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Route To:

Subject: Examination of Tree Condition at the Cree and Scott Able Fire Salvage Areas

To: Forest Supervisor, Lincoln National Forest

At the request of your Timber Staff Officer, Dennis Watson, a site visit to determine the condition of fire-killed trees at the Cree and Scott Able Salvage Areas was conducted by Terry Rogers, Entomologist, Forest Health, New Mexico Zone, and Steve Marsh, Measurement Specialist, Forestry Staff, Regional Office, on Tuesday, May 8, 2001. Their observations are detailed below:

Cree Salvage Area

The Cree Salvage Area, located on the Smokey Bear Ranger District, consists of small diameter fire-killed ponderosa pines ranging from 5 to 14+ inches in diameter. The site visit took place on the one-year anniversary of the Cree fire. Examinations of the lower boles of standing fire-killed pines revealed no evidence of insect feeding activity in or underneath the bark. The cambial tissues (located at the interface between the bark and wood) of the lower portions of the stems had been killed by the intense heat of the fire and, therefore, were not suitable for wood borer colonization (Figure 1).

Figure 1. Ponderosa pine with fire-killed cambium showing no immediate signs of wood borer feeding activity.

However, when these same trees were felled and the mid and upper portions of the stems were examined, extensive wood borer damage (coarse frass packed underneath the bark and entrance holes into the wood) was observed. Cross sections taken from the lower, mid, and upper portions of the felled trees (Figure 2) showed the borers were actively tunneling up and down through the stems of the infested trees.

Figure 2. Cross section of mid bole showing wood borer tunneling damage

Wood borer larvae (worms) hatching from the eggs bore through the bark and feed on the living cambial tissues before boring into the wood. After boring into the wood, they feed from two to three years or more before emerging as adults. Most of the damage observed was caused by flatheaded wood borers (Family Buprestidae). Wood borers do not cause significant structural damage to the trees or boards produced from them. However, homeowners are often frightened when adult beetles start emerging from infested wood used in home construction. Wood borers can be killed by putting the infested boards in a kiln at 170 degrees F for 24 hours.

All of the trees examined at this site were determined to be sound and free of defect as defined by the Forest Service Cubic Scaling Handbook, FSH 2409.11a. However, weather checking could occur as early as next year if the trees are not salvaged soon.

Scott Able Salvage Area

The Scott Able Fire occurred on the Sacramento Ranger District in May of 2000. This fire occurred in the mixed conifer forest cover type consisting of Douglas-fir, true firs and some lesser amounts of ponderosa pine and white pine. The resulting conditions are similar to those described for the Cree Salvage Area. In the hottest areas of the burn, the trees were not suitable for wood borer colonization since the cambial tissues were killed outright by the intense heat of the fire (Figure 3).

Figure 3. Trees killed. No signs of bark beetle or borer feeding activity

In areas where the fire was less intense and where there was adequate live cambial tissue, extensive borer activity was observed in all trees examined (Figure 4).

Figure 4. Wood borer entrance hole

If these fire-killed trees are salvaged, we recommend that the boards be kiln-heated, as noted earlier, to kill the borer larvae infesting them.

Most of the thicker barked trees - Douglas-fir, true firs and ponderosa pine - appeared to be holding up pretty well with very little, if any, weather checking occurring. The white pine, however, was deteriorating quickly, primarily due to its thinner bark. This thinner bark, once singed, quickly dries out and will fall off the bole, exposing bare wood. As the bole dries out, the woody fiber shrinks and will crack across the grain to relieve the pressure. These cracks are called weather checks. If the tree is not harvested in the first couple of years after the bark falls off, the tree may be unusable for lumber production due to deep cracks penetrating the bole. On trees with the thicker bark, this process may be delayed for a year or so; but once started, the loss will amount to about one 16-foot log lost per year.

If you have any questions concerning this summary, please contact Terry at (505) 842-3287 or Steve at (505) 842-3249.

/s/ Debra Allen-Reid
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